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(54) Combined electrical and ionic toothbrush

(57) A combined electrical and ionic toothbrush having a handle (10) housing a motor (11) and battery (12). An electrically conductive drive shaft (16) extends to a toothbrush head (14), and is arranged to move an array of bristles (15) relative to the brush head in a normal manner. An exposed pad (19) electrically connected to the positive pole of the battery (12) is contacted in use to the users palm. The negative pole of the battery (12) is connected via a rotor (18) of the motor (11) and the drive shaft (16) to provide a series electrical path for the current to flow thereby applying a negative potential to the teeth when the aperture (25) is filled with water and/or saliva. A return path for the current is provided via the users body and the pad (19).

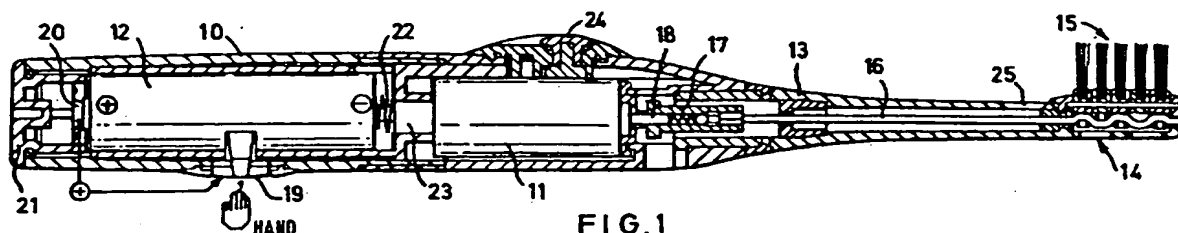


FIG. 1

At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

This print takes account of replacement documents submitted after the date of filing to enable the application to comply with the formal requirements of the Patents Rules 1995

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TOOTHBRUSHES

The invention relates to toothbrushes.

5 The invention relates more particularly to battery operated electrical toothbrushes that have bristles mounted in a toothbrush head and a handle arranged to incorporate a battery and an electric motor. A shank extends between the handle and the toothbrush head and a drive shaft extends along inside the shank that is arranged to move the bristles so as to cause the bristles
10 to vibrate and/or rotate as appropriate. Various toothbrushes of this kind are well known.

15 It is also known to provide non-driven toothbrushes having relatively stationary brush heads and static bristles in which low voltage, 1 to 5 volts say, direct current is applied via the toothbrush to teeth and gums during use. An applied negative potential serves to improve cleaning and cleansing and especially aids the removal of plaque from the teeth. Such toothbrushes are known as "Ionic toothbrushes".

20 It is an object of the invention to provide a combined electrical operated and Ionic toothbrush.

According to the invention there is provided a combined electrical ionic toothbrush having a handle incorporating

described by way of example with reference to the accompanying drawings in which:-

Figure 1 is a sectional side view of the toothbrush;

Figure 2 is a part-sectional bottom view of the toothbrush; and

Figure 3 is a schematic circuit diagram of the toothbrush.

Referring to the drawings, in Figures 1 and 2, the toothbrush comprises a handle 10 in which is housed a direct current electrical motor 11 and a battery 12. A shank 13 extends from the handle 10 to a toothbrush head 14 in which is mounted an array of bristles 15. An electrically conductive drive shaft 16 extends along inside the shank 13 from the motor 11 to the toothbrush head 14 and is cranked at its remote end as shown. An electrically conductive coupling 17 couples the drive shaft to a rotor 18 of the motor 11 and during normal use rotation of the shaft by the motor causes the bristles to move up and down, as viewed in Figure 1.

An exposed metal pad 19 is mounted on an underside of the handle 10 which is electrically coupled (as shown diagrammatically in Figure 1) to a terminal 20. In an end cap 21, that presses against a positive pole of the

voltage direct as required to connect the battery to an output adjacent the toothbrush head 14. For applying an electrical potential to the teeth, it is normally sufficient, as illustrated in Figures 1 and 2, to have an aperture 25 in the shank 13 adjacent the toothbrush head 14 so as to expose a remote end of the drive shaft 16. The aperture 25 allows water, and particularly saliva, to make contact with the drive shaft 16 which completes a current path from the shaft to the surfaces of the teeth.

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including a separate electrically conductive mechanical coupling connecting the opposite end of the rotor to the drive shaft.

- 5 5. A toothbrush substantially as herein described with reference to the accompanying drawings.